

RETENTION OF MALATHION BY PERSONAL PROTECTIVE EQUIPMENT IN SIMULATED ULTRA LOW VOLUME (ULV) AEROSOL APPLICATION IN LABORATORY TESTS

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Dengue and dengue hemorrhagic fever represent one of the greatest challenges to public health at a world level. One of the approaches to mosquito control is the use of chemicals to kill the different stages of the mosquito life cycle. In São Paulo, the chemical control of *Aedes aegypti* is carried out by spraying the insecticide malathion 96% technical grade, diluted in vegetable oil (1:2, v / v) on buildings and environment. In dengue control, particularly during epidemics, space spray of insecticides in the form of ultra low volume (ULV) aerosols is practiced. This procedure can cause occupational risks to those who apply it. In order to evaluate the worker's exposition and the personal protective equipment (PPE) used, study of retention capacity of the malathion on the PPE was conducted. A laboratory test simulating field application of malathion was performed using a glass box (0.5mm= thickness, 40.0cm= length, 40.0cm= width e 40.0cm= height) with removable lid, where three mannequin busts with a part of EPI were placed. Two sanitary napkins between the EPI and the mannequins, one at back and other at the front, and two others over the EPI were fitted. A micronebulizer was engaged in front of the glass box and a pump compressor was connected, 3.0mL of malathion diluted in vegetable oil was applied during 1 hour and a half. After the time the tampons were removed from the mannequins placed in glass vials and extracted with 60mL of hexane under stirring for 30min. The extracts were detected and quantified by gas chromatograph with Flame Ionization Detector (FID), column rtx-5, (3.0 m x 0.25 mm d.i. x 0.25 µm film thickness), oven temperature was 60 °C, for 1 min; then 25 °C/min to 250 °C for 3 min; then 30 °C/.min⁻¹ to 280 °C for 5 min. Temperature injector 230°C, and detector 300°C was used and nitrogen was carrier gas The concentration present in sanitary napkin was calculated as a percentage of the total amount of malathion in the spray solution. After each malathion application, the EPI were washed with soap and water, left to dry and reused again. During the experiment, were performed 05 washings and 04 insecticide applications. Malathion was detected on the sanitary napkins placed between the EPI and the mannequins only in the last application of the insecticide, showing that, after 4 washes EPI loses its protection.

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